

**BEDFORDSHIRE AND RIVER IVEL
INTERNAL DRAINAGE BOARD**

BIODIVERSITY ACTION PLAN



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This Biodiversity Action Plan has been prepared by the Bedfordshire and River Ivel Internal Drainage Board in accordance with the commitment in the Implementation Plan of the DEFRA Internal Drainage Board Review for IDBs to produce their own Biodiversity Action Plans by April, 2010. It also demonstrates the Bedfordshire and River Ivel IDB's commitment to fulfilling its duty as a public body under the Natural Environment and Rural Communities Act 2006 to conserve biodiversity.

Many of the Bedfordshire and River Ivel IDB activities have benefits for biodiversity, not least its water level management and ditch maintenance work. It is hoped that this Biodiversity Action Plan will help the Bedfordshire and River Ivel IDB to maximise the biodiversity benefits from its activities and demonstrate its contribution to the Government's UK Biodiversity Action Plan targets.

The IDB has adopted the Biodiversity Action Plan as one of its policies and is committed to its implementation. It will review the plan periodically and update it as appropriate.

Date

.....

Mr R. O. Bennett, Chairman
Bedfordshire and River Ivel Internal Drainage
Board

Date

.....

Mrs F. Bowler, Clerk, Bedfordshire and River Ivel
Internal Drainage Board

This Biodiversity Action Plan is a public statement by the Bedfordshire and River Ivel IDB of its biodiversity objectives and the methods by which it intends to achieve them. We would welcome appropriate involvement in the delivery of the Plan from interested organisations, companies, and individuals.

You can contact us about this Biodiversity Action Plan by writing to the following address:

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1 IDB BIODIVERSITY – AN INTRODUCTION

1.1 Introduction

The Bedfordshire and River Ivel Internal Drainage Board (B&RI IDB) has conducted a biodiversity audit of its district and identified those habitats and species that would benefit from particular management or actions by the IDB. Using this information, which is presented in later sections, the Bedfordshire and River Ivel IDB's Biodiversity Action Plan has been developed. The Plan identifies objectives for the conservation and enhancement of biodiversity within the drainage district, and goes on to describe targets and actions that will hopefully deliver these objectives. The intention is to integrate, as appropriate, biodiversity into the Board's activities, such as annual maintenance programmes and capital works projects.

The action plan will help to safeguard the biodiversity of the drainage district now and for future generations. In particular, it is hoped that implementing the plan will contribute to the achievement of local and national targets for UK BAP priority species and habitats. Species and habitats which are not listed in the UK BAP but may be locally significant for a variety of reasons have also been considered.

The Plan is an evolving document that will be reviewed and updated on a regular basis. It covers the entire drainage district of the Bedfordshire and River Ivel IDB, as shown in Figure 1.

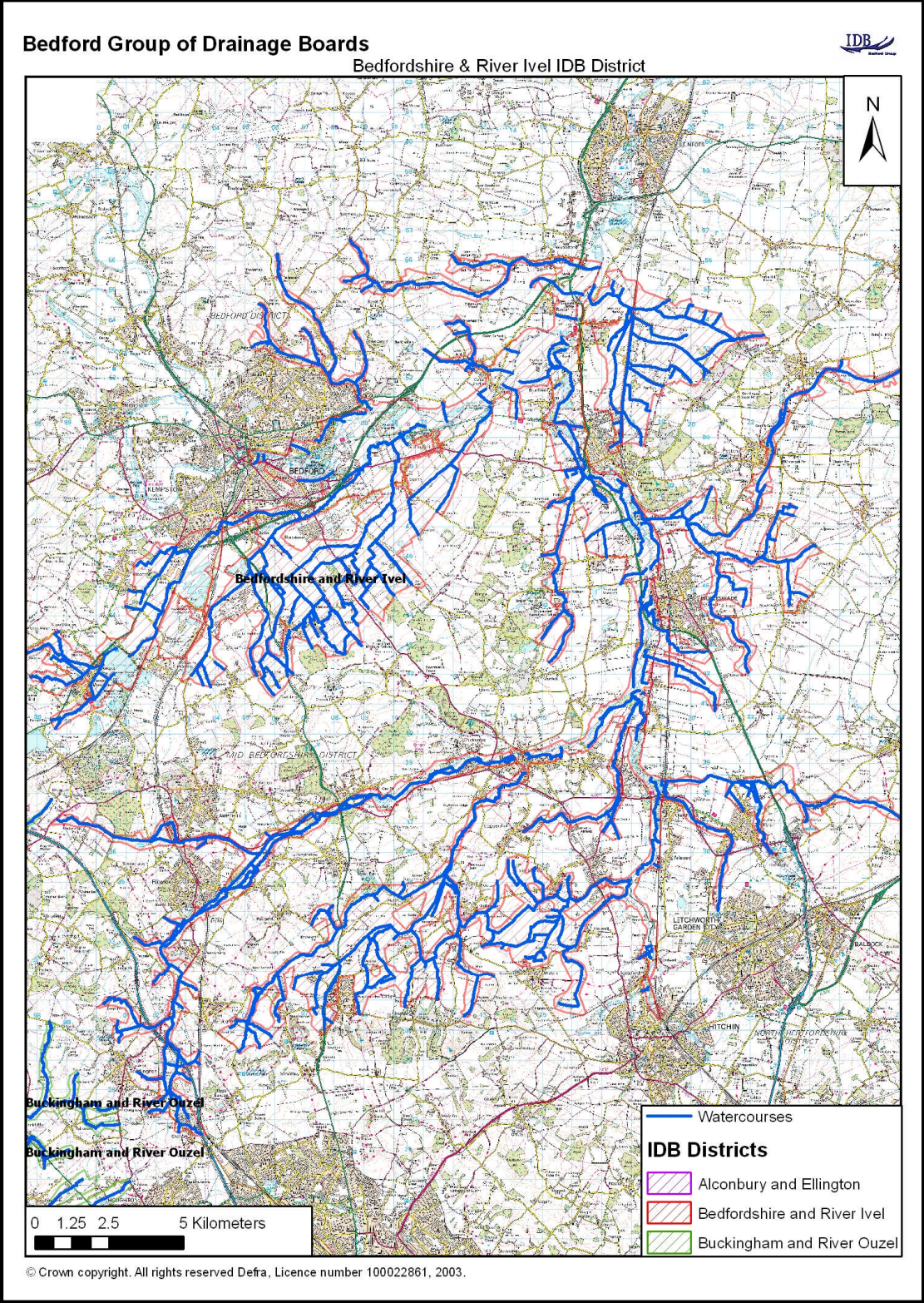
1.2 What is Biodiversity?

The Convention on Biodiversity, agreed at the Earth Summit in Rio de Janeiro in 1992, defined biodiversity as:

“The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.”

Biodiversity can be defined simply as “the variety of life” and encompasses the whole spectrum of living organisms, including plants, birds, mammals, and insects. It includes both common and rare species, as well as the genetic diversity within species. Biodiversity also refers to the habitats and ecosystems that support these species.

Figure 1: Bedfordshire and River Ivel IDB district



1.3 The Importance of Conserving Biodiversity

Biodiversity is a vital resource and it is essential to acknowledge its importance to our lives along with the range of benefits that it produces:

- Supply of ecosystem services – water, nutrients, climate change mitigation, pollination
- Life resources – food, medicine, energy and raw materials
- Improved health and well-being
- Landscape and cultural distinctiveness
- Direct economic benefits from biodiversity resources and ‘added value’ through local economic activity and tourism
- Educational, recreational and amenity resources

1.4 The Biodiversity Action Planning Framework

This Bedfordshire and River Ivel IDB Biodiversity Action Plan is part of a much larger biodiversity framework that encompasses international, national and local levels of biodiversity action planning and conservation.

1.5 Biodiversity – The International Context

The international commitment to halt the worldwide loss of habitats and species and their genetic resources was agreed in 1992 at United Nations Conference on the Environment and Development, commonly known as the Rio Earth Summit. Over 150 countries, including the United Kingdom, signed the Convention on Biological Diversity, pledging to contribute to the conservation of biodiversity at the global level. These states made a commitment to draw up national strategies to address the losses to global biodiversity and to resolve how economic development could go hand in hand with the maintenance of biodiversity.

The Rio Convention includes a global commitment to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level (www.biodiv.org/convention/default.html). The 2002 World Summit in Johannesburg on Sustainable Development subsequently endorsed this target.

1.6 Biodiversity – The National Context

The UK Biodiversity Action Plan (UK BAP) is the UK commitment to Article 6A of the Rio Convention on Biological Diversity. It describes the UK's priority species and habitats, and seeks to benefit 65 priority habitats and 1149 species in total. It identifies other key areas for action such as the building of partnerships for conserving biodiversity and gathering vital biodiversity data.

In England, *Working with the Grain of Nature* sets out the Government's strategy for conserving and enhancing biological diversity, and establishes programmes of action for integrating biodiversity into policy and planning for key sectors, together with appropriate targets and indicators. The Strategy has a Water and Wetlands Working Group and an associated programme of action that includes:

- Integrating biodiversity into whole-catchment management.
- Achieving net gain in water and wetland BAP priority habitats through Water Level Management Plans, Catchment Flood Management Plans, and sustainable flood management approaches.

1.7 Local Biodiversity Action Plans

For the UK Biodiversity Action Plan to be implemented successfully it requires some means of ensuring that the national strategy is translated into effective action at the local level. The UK targets for the management, enhancement, restoration, and creation of habitats and species populations have therefore been translated into targets in Local Biodiversity Action Plans (LBAPs), which tend to operate at the county level.

1.8 Internal Drainage Boards and Biodiversity

Section 12 of The Land Drainage Act 1991 obliges Internal Drainage Boards to further the conservation of wildlife and geological and physiographical features of special interest, consistent with any enactments relating to their functions. Subsequently, the Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. As a public body, every IDB must have regard in exercising its functions, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.

The Act states that conserving biodiversity includes restoring or enhancing a population or habitat. In so doing, an IDB should have regard to the list published by the Secretary of State of living organisms and types of habitat that are of principal importance for the purpose of conserving biodiversity. In effect, this list comprises the Biodiversity Action Plan priority species and habitats for England.

In 2007, the Government's IDB Review Implementation Plan established a commitment that IDBs should produce their own Biodiversity Action Plans.

This Bedford IDB Biodiversity Action Plan has been produced to help fulfil these requirements and seeks to set out targets and actions that complement the UK Biodiversity Action Plan and Local Biodiversity Action Plans.

1.9 The Aims of the Bedfordshire and River Ivel IDB Biodiversity Action Plan

The aims of this Bedfordshire and River Ivel IDB BAP are:

- To ensure that habitat and species targets from the UK Biodiversity Action Plan and the local LBAP are translated into effective action within the drainage district.
- To identify targets for other habitats and species of local importance within the drainage district.
- To develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term.
- To raise awareness within the Bedfordshire and River Ivel IDB and locally of the need for biodiversity conservation, and to provide guidance to landowners, occupiers and their representatives on biodiversity and inland water management.
- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the Bedfordshire and River Ivel IDB's operations, and
- To monitor and report on progress in biodiversity conservation.

2 THE IDB BAP PROCESS

2.1 The Biodiversity Audit

To produce this Bedfordshire and River Ivel IDB Biodiversity Action Plan, information on the habitats and species present in the catchment was first obtained. This “Biodiversity Audit” involved the collation of existing data held by the IDB and by other biodiversity partners.

2.2 Evaluating and Prioritising Habitats and Species

The Biodiversity Audit identified those priority habitats and species in the UK Biodiversity Action Plan and the Local Biodiversity Action Plan that can be found in the drainage district. Additional non-BAP habitats and species deemed to be important within the drainage district were also identified.

Further habitats and species, together with additional targets and actions, may be added in the future, as knowledge is improved and delivery of the Bedfordshire and River Ivel IDB BAP is reviewed.

A range of criteria was then used to select those species and habitats that are of particular importance to the Bedfordshire and River Ivel IDB – that is to say, those habitats and species that could benefit from its actions. The criteria used included their national and local status, the opportunities for effective Bedfordshire and River Ivel IDB action and the resources available.

2.3 Setting Objectives, Targets and Indicators

For each habitat and species identified as being important to the Bedfordshire and River Ivel IDB, conservation objectives and targets have been drawn up and set out in the Plan. The objectives express the Bedfordshire and River Ivel IDB’s broad aims for benefiting a particular habitat or species. The related targets have been set to focus Bedfordshire and River Ivel IDB programmes of action and to identify outcomes that can be monitored to measure achievement. For each target an indicator has been set – a measurable feature of the target that, when monitored over time, allows delivery to be assessed.

In order for this BAP to be as effective as possible the targets and actions have been devised to be SMART (Specific, Measurable, Achievable, Relevant and Time-limited). The targets are ambitious, but are also considered to be proportionate and practicable given the resources available.

Procedural targets and actions have also been considered. These are targets that the Bedfordshire and River Ivel IDB will use to measure the way in which it considers

and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

2.4 Implementation

Once targets have been set for habitats and species, it is important that the actions to deliver the Biodiversity Action Plan are described. The Plan sets out how the Board intends to implement the actions in the plan, often in partnership with other organisations or individuals.

2.5 Monitoring

Achievement of the Plan targets will be measured by a programme of monitoring which the Bedfordshire and River Ivel IDB will undertake, in some instances with assistance from its partners, and the methods to be used are described in the Plan.

2.6 Reporting and Reviewing Progress

It is important to review the implementation of the BAP, assess changes in the status of habitats and species and the overall feasibility of objectives and targets. In addition, it is vital that the successful achievement of targets is recorded and the gains for biodiversity registered in the public domain.

The Plan sets out the methods the Bedfordshire and River Ivel IDB will be using to review the delivery of targets and to communicate progress to partner organisations and the public.

3 THE BIODIVERSITY AUDIT

3.1 Introduction

The following Sections summarise the results of the Biodiversity Audit, undertaken in 2009. Section 4 provides information about the drainage district and a list of the nature conservation sites that occur within or bordering its boundaries. Sections 5 and 6 list respectively the habitats and species occurring within the district that are of potential importance to the IDB.

3.2 Local Biodiversity Action Plans

The Bedfordshire, Hertfordshire and Cambridgeshire and Peterborough Biodiversity Action Plans cover the Bedfordshire and River Ivel IDB district. The majority of the district falls within Bedfordshire with limited lengths of watercourse areas around Hitchin, east of Astwick and Pirton and north of Hexton falling within Hertfordshire. Small lengths of watercourses north-west of Gamlingay and the Potton Brook fall within Cambridgeshire.

The Cambridgeshire and Peterborough BAP originally had 23 habitat action plans and 15 species action plans. The LBAP is currently being reviewed, and the new list of species has not been finalised.

The Bedfordshire BAP has 15 habitat action plans and 15 action plans relating to species or groups of species.

Hertfordshire has 11 habitat action plans and 14 species action plans.

3.3 Bedfordshire and River Ivel IDB Biodiversity Audit Boundary

The Biodiversity Audit covers the district of the Bedfordshire and River Ivel IDB, as shown in Figure 1.

3.4 Sources of Data - Habitats

Information on habitats of relevance occurring within the drainage district was obtained from the following sources:

- MAGIC Data base
- Cambridgeshire and Peterborough Biological Records Centre
- Bedfordshire Biological Records Centre
- Hertfordshire Biological Records Centre
- Biodiversity Co-ordinator for Cambridgeshire
- Biodiversity Co-ordinator for Bedfordshire

- JBA Consulting – BAP Habitats within the Bedfordshire and River Ivel Internal Drainage Board

3.5 Sources of Data - Species

Information on species of relevance occurring within the drainage district was obtained from the following sources:

- NBN Gateway
- Cambridgeshire and Peterborough Biological Records Centre
- Bedfordshire Biological Records Centre
- Hertfordshire Biological Records Centre
- Biodiversity Co-ordinator for Cambridgeshire
- Biodiversity Co-ordinator for Bedfordshire

4 NATURE CONSERVATION SITES

4.1 The Drainage District

The drainage district covers an area of 17852 ha and contains 636 km of IDB-maintained watercourses. It is predominantly situated to the south of Bedford and includes tributaries to the River Great Ouse; the Ivel and its tributaries such as the Elstow Brook, the Flit and the Potton Brook. Major urban areas include Bedford, Biggleswade, Sandy, Shefford, Stotfold, Flitwick, Letchworth and Hitchin.

4.2 Geology

Given the large area covered by the Bedfordshire and River Ivel IDB, there is a wide range of geological conditions present. The land to the north of the district is predominantly comprised of the moderately permeable calcareous clayey soils overlying chalky boulder clay or, in the south, Jurassic cretaceous clays. The broader river valleys of the Ivel and its tributaries have well drained soils over alluvium and river terrace gravels.

In the centre of the district, running south-west to north-east is the Greensand Ridge, a narrow escarpment of lower Greensand which comprises Cretaceous sands and sandstones with sandy acidic soils. In contrast, to the extreme south-east of the district is the band of chalk which forms the Chilterns and then, north-eastwards, the East Anglian chalk ridge.

4.3 Landscape

4.3.1 Landscape Designations

No landscape designations apply to the district.

4.3.2 Landscape Character

Natural England has divided the whole of England into a number of Joint Character Areas (JCA) based on characteristic landforms, wildlife and land use. They are not designations and are not confined by traditional administrative boundaries. For each JCA, Natural England has prepared a profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation. Information on Joint Character Areas can be found at: www.countryside.gov.uk/LAR/Landscape/CC/jca.asp.

Bedfordshire and River Ivel IDB district is predominantly within the Bedfordshire and Cambridgeshire Claylands JCA with a gently undulating topography and plateau areas divided by broad shallow valleys. Predominantly arable, fields are bounded by either open ditches or sparse, trimmed hedges. The river corridors of the Great Ouse and the Ivel hold flood-plain grassland, riverine willows and larger hedges. The Greensand Ridge JCA is a narrow escarpment with mixed land use and a high proportion of woods, heath and pasture. Arable is present on the dip slope.

The extreme south-east of the IDB district is within the Chilterns JCA and the East Anglian Chalk JCA. The latter is a continuation of the Chilterns and is typified by rolling downland, mainly arable, with beech woodland.

4.3.3 Sites and Monuments Records

In view of the large number of Scheduled Monuments, these are not detailed. Their locations are however available via the MAGIC data base or through English Heritage. The Board's maintenance operations are long-established and therefore will have a negligible effect on these sites.

4.3.4 Tree Preservation Orders

None known

4.4 Statutory Nature Conservation Sites

4.4.1 International Sites

No internationally designated sites are present within the Bedfordshire and River Ivel IDB district.

4.4.2 National Sites

There are two nationally designated sites within the Bedfordshire and River Ivel IDB district. Their location of the site is shown in Appendix 1. Both sites are the subject of Water Level Management Plans.

Table 2. National Designations

Site name	Designation	Features Relevant to IDB
Flitwick Moor	SSSI	Flitwick Moor is the largest semi-natural wetland in Bedfordshire with a range of swamp, mire with acid springs, fen and mesotrophic grassland communities with carr woodland and some drier wood. The site contains a rich assemblage of notable vascular and lower plants and fungi and is renowned for its invertebrate interest.
Fancott Woods and Meadows	SSSI	Fancott Meadows are mainly ancient ridge and furrow. The meadows exhibit a variety of vegetation types chiefly dependent on the drainage conditions.

4.4.3 Local Nature Reserves

There are five Local Nature Reserves, designated by local authorities under Section 21 of the National Parks and Access to the Countryside Act 1949, within the district. All are within Bedfordshire and none are present within Cambridgeshire or Hertfordshire.

Table 3. Local Nature Reserves

Site name	Grid Reference	Borough
Flitwick Wood	TL 023 348	Central Bedfordshire
Flitton Moor	TL 056 360	Central Bedfordshire
Fenlake Meadow	TL 066 489	Bedford Borough
Henlow Common and Langford Marsh	TL 184 405	Central Bedfordshire
The Riddy	TL 166 487	Sandy Town Council

4.4.4 Non-statutory Local Sites

The 48 County Wildlife Sites within the Bedfordshire and River Ivel IDB district in Bedfordshire and 8 sites in Hertfordshire are listed in Appendix 2. None are present within the Board's District in Cambridgeshire.

Whilst these designations do not have statutory status, the sites themselves are important for their contribution to biodiversity and planning policy requires that they are given consideration.

5 HABITAT AUDIT

5.1 Habitat Audit Summary

This summary lists the UK BAP priority habitats, defined by the Report on the Species and Habitats Review (2007), within the Bedfordshire and River Ivel IDB district as identified by the information gathering exercise. Also listed are habitats considered as of local importance and/or featured in the county Local BAPs. Habitats that are of potential importance for the Bedfordshire and River Ivel IDB, where water level management or other activities may be of benefit, are identified. Finally, the potential for the Bedfordshire and River Ivel IDB to maintain, restore or expand its important habitats is identified.

Table 4. Habitat Audit Summary

UK BAP Priority Habitat	Local Biodiversity Action Plan Habitat	Habitat of Importance for Bedfordshire and River Ivel IDB	Location of Habitat of Importance for Bedfordshire and River Ivel IDB	Bedfordshire and River Ivel IDB Potential for Maintaining, Restoring or Expanding Habitat
Rivers	Rivers and Streams (Cambs) Wetlands (Herts)	Rivers and Watercourses	River Great Ouse, River Ivel, Elstow Brook, River Flit, River Hiz and tributaries	Promote by sensitive management
Ponds	Ponds, Lakes and Reservoirs (Cambs) Ponds (Beds)	Ponds,	Across the district	Promote by sensitive management, creation via planning duties
Eutrophic standing waters	Ponds, Lakes and Reservoirs (Cambs)	Brick pits	Marston Vale	Manager of water levels of Stewartby Lake

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Arable Field Margins	Arable Margins (Beds) Arable Land (Cambs) Farmland (Herts)	Field margins	Throughout	Promote sensitive management
Coastal and Floodplain Grazing Marsh	Floodplain Grazing Marsh (Cambs, Herts and Beds,)	Floodplain grazing marsh	Ivel Valley, Flit Valley, Hiz Valley	Promote opportunities for flood storage
Lowland Fens	Fens (Cambs)	Fen	Flitwick Moor	Maintain through appropriate water level management defined by the WLMP
Reedbeds	Reedbeds (Cambs, Herts and Beds)	Reedbeds	Very limited	Maintain through appropriate water level management
Wet woodland	Wet woodland (Beds, Cambs and Herts)	Wet woodlands	Flitwick Moor Flit valley	Maintain through appropriate water level management defined by the WLMP
Ancient and/or species-rich hedgerows	Hedgerows	Hedgerows	Throughout	Maintain through sensitive management

6 SPECIES AUDIT

6.1 Species Audit Summary

This summary lists the UK BAP priority species, defined by the Report on the Species and Habitats Review (2007), within the Bedfordshire and River Ivel IDB district as identified by the information gathering exercise. Also listed are species considered as of local importance and/or featured in the county Local BAPs. Species that are of potential importance for the Bedfordshire and River Ivel IDB, where water level management or other activities may be of benefit, are identified. Finally, the potential for the Bedfordshire and River Ivel IDB to maintain or increase the population or range of species of importance is identified.

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Table 6. Species Audit Summary

Common Name	Group	UK BAP Priority Species	Local BAP species	Non-BAP Species but Important in Bedfordshire and River Ivel IDB District	Bedfordshire and River Ivel IDB Potential for Maintaining or Increasing Species Population or Range
Water Vole <i>Arvicola terrestris</i>	Terrestrial mammals	Yes	Beds, Herts		Undertake ditch management to benefit water vole
Otter <i>Lutra lutra</i>	Terrestrial mammals	Yes	Beds		Undertake ditch management to benefit otter
Bats	Terrestrial mammals	Some species	Beds		Sympathetic tree management
Kingfisher <i>Alcedo attheis</i>	Bird	No		Yes	Maintain nesting banks
European eel <i>Anguilla anguilla</i>	Fish	No		Yes	Ensure easy passage of elvers
White-clawed crayfish <i>Austropotamobius pallipes</i>	Invertebrate	Yes	Cambs, Herts		Appropriate management

* The Cambridgeshire Species Action Plan is currently under review.

7 HABITAT AND SPECIES ACTION PLANS

7.1 Habitat and Species Action Plans

The Action Plans contained in the following sections comprise the objectives, targets and actions that the Bedfordshire and River Ivel IDB has identified for each habitat and species in so far as they are relevant to the pursuance of its functions. These have been identified principally in collaboration with the Bedfordshire Biodiversity Partnership and the Wildlife Trust whose input, together with that of the Cambridgeshire and Peterborough Biodiversity Partnership is gratefully appreciated by the Bedfordshire and River Ivel IDB. In principle, the actions proposed will support or contribute to the actions proposed within the Bedfordshire and Luton Biodiversity Action Plan whose remit covers the majority of the IDB district. These plans will be reviewed and updated periodically.

A Procedural Action Plan has also been devised.

8 ARABLE MARGINS

8.1 Introduction

The farmed countryside can be important for wildlife with the majority of, though not all, species using the land being found on the margins of cropped land, including ditches, hedges and field margins. Species which may be present include the suite of farmland birds, many of which are themselves UK BAP Priority species including grey partridge, skylark and yellowhammer, arable wildflowers and invertebrates. The value of arable land for wildlife has declined, largely due to the intensification of production including cropping regimes, herbicide and pesticide use and reduction of marginal habitats.

8.2 National Status

Agricultural land comprises 67% of the total land area of the United Kingdom and, of this, 33% is in arable production. In Eastern England the figures are 71% and 86% respectively (Source: Defra). Within Cambridgeshire 70% of the land area is under arable production (Source: Cambridgeshire Environment Report, 1990) and within Bedfordshire 76% (Source: Defra).

Arable Field Margins are the subject of a UK Biodiversity Action Plan whose targets relate to improved management via Agri-Environmental Schemes.

8.3 Local Status

Arable field margins are currently excluded from the Cambridgeshire BAP which covers arable fields but are covered specifically by the Bedfordshire and Luton Arable Margins BAP whose objectives are to maintain and where possible expand the range of margins and to maintain and where possible improve the condition of existing margins.

8.4 Status within the Drainage District

Arable field margins are common within the Bedfordshire and River Ivel IDB district.

8.5 Bedfordshire and River Ivel IDB Objectives and Targets

1. Encourage the enhancement of habitats adjacent to watercourses and reduce soil wash off into the watercourses.

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Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Enhance adjacent habitats	1.1	Encourage use of buffer strips adjacent to watercourse by promoting the Environmental Stewardship Scheme *	Landowners	As approached	Number of approaches	As approached

* NB This will not preclude the margins being used on occasion

8.6 Associated Species

The following species will also benefit from this habitat action plan
Farmland birds including UK BAP Priority Species grey partridge, yellow hammer, reed bunting, and skylark
Schedule 1 species Barn owl.

9 PONDS

9.1 Introduction

Ponds can vary in size from 1 sq m to 2 ha and may be permanent or temporary features providing that they hold water for at least four months of the year. They hold a varied range of species and are particularly important for UK BAP species holding 80-90 species.

9.2 National Status

It is estimated (Pondlife data) that there are around 385 000 ponds in the UK in upland and lowland locations within a range of habitats. Despite the apparently high number, the habitat is at risk as there has been a significant long-term loss of ponds despite the loss slowing in recent years.

Ponds are the subject of a UK Biodiversity Action Plan. Not all ponds qualify however and there are criteria to determine what should be included as a priority pond. These criteria relate to inclusion within the Habitats Directive, presence of protected and other species of high conservation importance, important assemblages of species, high ecological quality (based on plant and invertebrate scores) and other important ponds.

9.3 Local Status

There are relatively few natural ponds in Bedfordshire and Cambridgeshire and their decline is due to land drainage, river channelisation and in-filling. However, attenuation ponds are increasingly being constructed as part of development projects. While these may develop ecological value, their principal function is to protect people and property. Many ponds are nutrient –rich which may limit the range of aquatic plants and invertebrates.

Survey within Bedfordshire has shown a loss of 4% within 31 1km squares.

Ponds are the subject of a local BAP (Bedfordshire and Luton Biodiversity Partnership, 2008) whose objectives are to maintain the number of Priority Ponds as established by survey, restore 102 pond sites by 2022 to high quality status to deliver Species Action Plan targets and to create 80 new pond sites of high quality potential by 2015.

9.4 Status within the Drainage District

No precise figures for pond numbers are available for the IDB district. However, there is an estimate of 2865 ponds in Bedfordshire (Ponds Habitat Action Plan, 2008) and analysis of the GIS landline overlay suggests in the region of 3680 ponds. The extent of Cambridgeshire and Hertfordshire falling within the IDB district is small and it is not considered that the total number of ponds will change appreciably.

9.5 Bedfordshire and River Ivel IDB Objectives and Targets

1. Provide support for the Pond LBAP.

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Support positive management of Priority Ponds	1.1	Provide assistance in manpower and machinery and information	Bedslife; Ivel and Ouse Countryside Project	As required	Request and help provided	On completion
2	Identify areas where ponds of high quality potential could be created	2.1	Via development control and reporting to partners	Bedslife; Ivel and Ouse Countryside Project	Ongoing	Action undertaken	On completion

9.6 Associated Species

Many species are associated with ponds including foraging bats, amphibians, grass snakes, fish, and a range of invertebrate and plant species. The precise range will depend on the water quality.

10 HEDGEROWS

10.1 Introduction

Hedgerows provide strong landscape features and are important in their own right, as well as for biodiversity (for example by providing habitats for a range of invertebrates and birds and foraging for bats) and also for cultural and archaeological reasons. They have the important function of providing a wildlife corridor for many animals including snakes, small mammals and invertebrates thus allowing dispersal and providing a refuge for many woodland and farmland plants and animals. They are often the most important feature in the agricultural lowlands and this is particularly true within the fens.

Hedgerows are a primary habitat for at least 47 species of conservation concern in the U.K. The Hedgerows Regulations 1997 provides protection for 'Important' hedges

10.2 National Status

It is estimated that the total UK resource of hedges is around 450 000 km, of which 329 000 km are in England. It has been estimated that 42% of these hedges are either ancient or species-rich. Between 1984 and 1990, the net loss of hedgerow length in England has been estimated as 21% (UK Steering Group).

Hedgerows are the subject of a UK Biodiversity Action Plan.

10.3 Local Status

Hedgerows in Bedfordshire, Cambridgeshire and Hertfordshire provide a major semi-natural habitat within a generally intensively managed agricultural landscape. The Cambridgeshire Environment Report (1990) estimated that there are around 8000 km of hedges in Cambridgeshire with a loss of 30% between 1984 and 1990 while surveys in Bedfordshire suggest a total length of around 4500 km with a loss of 2% between 1976-1991.

Hedgerows are the subject of a Cambridgeshire BAP and a Bedfordshire and Luton BAP. In Bedfordshire the objectives are to maintain and where possible expand the network of hedges and to maintain and where possible to improve the condition and

species-richness. The objectives in Cambridgeshire are to halt the loss of hedgerows, achieve favourable management of all hedgerows and plant new hedgerows, particularly to help landscape connectivity.

10.4 Status within the Drainage District

Hedges are a dominant feature within the IDB district, with many watercourses bounded, at least on one side, by hedgelines. Most of these are species-poor and are either unmanaged or heavily managed.

10.5 Bedfordshire and River Ivel IDB Objectives and Targets

1. To maintain and enhance the hedges that are affected by the IDB's activities so as to ensure no net loss.

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Ensure no net loss of hedges as a result of the Bedfordshire and River Ivel IDB activities	1.1	Ensure that compensation planting takes place if any hedges are removed	Landowners	If required	Length	Annual
		1.2	Prevent damage to existing hedges *	Landowners	Ongoing	Length remaining intact	Annual

*NB This does not include management to allow watercourse maintenance.

10.6 Associated Species

The following species will also benefit from this habitat action plan:
Woodland and farmland birds including song thrush, turtle dove and bullfinch.

11 RIVERS AND WATERCOURSES

11.1 Introduction

Natural rivers provide important habitats for a range of species depending on their gradient, geology, water quality and flow. Specific features such as riffles, pools or margins, hold different assemblages of plants and animals. Drainage ditches and more heavily managed watercourses tend to be less diverse but, depending upon the substrate may still provide a range of features.

The smaller channels may be dry for much of the year but larger ones are of significant value for the range of wildlife including plants such as arrowhead, flowering rush, invertebrates, especially dragonflies, birds such as reed bunting and sedge warbler, fish including eels, water vole and otter.

11.2 National Status

There are few natural rivers remaining in lowland Britain and they are used for conveyance, abstraction (for drinking, industry and irrigation) and recreation and also accept discharges. They also act as linear corridor and this is particularly important in intensively farmed areas.

Rivers are listed as a UK Biodiversity Action Plan habitat. There are no revised targets for this group.

11.3 Local Status

Rivers in the region are nutrient-rich, taking water from the catchments primarily to the west, but also to the south, of the Counties. Within Bedfordshire, the principal river is the River Great Ouse which flows through the County eastwards into Cambridgeshire. Other important watercourses are the River Ivel and its tributaries and the River Flit. The only watercourse within Hertfordshire within the IDB district is the River Hiz draining north. These lowland watercourses are dominated by higher plants, including locally important species such as fringed water lily, and coarse fish such as chub and dace.

Rivers and Stream are listed as a Cambridgeshire Biodiversity Action Plan habitat. Targets include improving river-based habitat conditions and ecological status by 1 km per year, restoring degraded habitats and seek positive management and creating and enhancing riparian habitats. No action plan is yet available for Bedfordshire and Luton.

Within Cambridgeshire the LBAP objectives for Drainage Ditches include increasing the extent of adjacent buffer zone, maintaining the extent and quality of ditches if

‘conservation quality’ and restoring former ditches of conservation value. (Conservation value is defined as 8 or more vascular plant species or one Red List species or 2 Nationally Scarce vascular plant species or 9 or more Odonata per 20 m length).

11.4 Status within the Drainage District

A total of 636 km of watercourses pass through the Board’s district. Within the district there are a further 64 km of Main River under the management of the Environment Agency.

The River Great Ouse, River Ivel, River Hiz and the River Flit are County Wildlife Sites.

11.5 Bedfordshire and River Ivel IDB Objectives and Targets

1. To manage watercourses according to best practice so as to maintain the biodiversity interest, including within the riparian zone, while retaining the important land drainage, flood risk and water level management function.
2. To control invasive plant species.
3. To ensure that the Bedfordshire and River Ivel IDB does not adversely affect designated sites.

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Maintain and enhance the biodiversity interests of the watercourses	1.1	Maintain the current regimes which supports the biological interest of the watercourses	Landowners	Ongoing	Length managed	Annually
		1.2	Revise the management protocol for all works on watercourses based on the ADA Drainage Manual and other guidance (see 18)		2011	Completed document	As completed
2	Control stands of invasive non-native plant species	2.1	Identify and treat	Landowner	As required	Area treated	As completed
3.	Ensure that the Bedfordshire and River Ivel IDB does not adversely affect designated sites	3.1	Discuss works in advance	NE, Wildlife Trust	Ongoing	Consultation held	Annually

11.6 Associated Species

The following species will also benefit from this habitat action plan

Water vole
Otter
European Eel
Stone loach
Amphibians
Grass snake
Kingfisher
Sedge warbler
Reed bunting

12 WETLAND HABITATS

12.1 Introduction

Wetland habitats including wet woodland, floodplain grazing marsh, fen and reed beds are associated with watercourses and inundated or periodically inundated land. Each is a specialised habitat with specific water level requirements and long-standing management regimes, particularly in the case of fens, grazing marshes and reedbeds. While some, for example, reedbeds and wet woodlands may be limited in their botanical composition; the invertebrate diversity associated with them is high. In contrast, fens and floodplain pastures have a much higher diversity of plant communities.

12.2 National Status

Estimates of the extent of grazing marsh range from 216 000– 3000 000 ha in the UK, of which some 5000 ha is considered to be semi-natural. Reedbeds are present across some 5000 ha with some 50 sites in excess of 20 ha. The extent of wet woodland is estimated at 50-70 000 ha while the extent of lowland fens, which habitually occur on peats, is estimated at around 18 000 ha. The extent of fens is however difficult to determine due to some overlap between the other habitats. All the wetland habitats are vulnerable and have seen significant reductions in extent due to drainage, over and under management, poor water control and changes in water quality.

Each of the habitats is the subject of an individual UK Biodiversity Action Plan.

12.3 Local Status

Within Bedfordshire the extent of the habitats is generally limited to the river valleys. Floodplain grazing marsh is predominantly found within the Great Ouse, Ivel, Flit

Valleys within the Bedfordshire and River Ivel IDB district and in the Ouzel valley (outside it). Areas within the Flit and Ivel Valleys are of County Wildlife status. Within Hertfordshire a number of areas of floodplain grazing marsh are present around the River Hiz.

Reedbeds are highly limited in extent, most areas being very small. The habitat is largely found outside the Bedfordshire and River Ivel IDB's district, principally within the Marston Vale Country Park.

There are approximately 320 ha of wet woodland in Bedfordshire of which 180 ha is in good condition. Flitwick Moor is one of the most important sites in south-east England. Other woodland is fragmented along the Flit.

Fenland within Bedfordshire is limited to Flitwick Moor.

Bedfordshire, Cambridgeshire and Hertfordshire have prepared action plans for floodplain grazing marsh, reedbeds and wet woodland. Cambridgeshire has an action plan for fens.

12.4 Status within the Drainage District

The Flit, Great Ouse, Ivel and Hiz valleys support the greatest extent of these wetland habitats including a number of County Wildlife Sites. The most important site is Flitwick Moor SSSI which has been the subject of a Water Level Management Plan prepared by the Bedfordshire and River Ivel IDB.

Biggleswade Common is the subject of work to improve grazing marsh and there are specific BAP targets relating to Henlow Common, Langford Meadow, Flitton Moor, Sutton Fen and Lower Alders.

The Hiz valley is a key Biodiversity area for fen and wet meadows in Hertfordshire.

12.5 Bedfordshire and River Ivel IDB Objectives and Targets

1. To assist in the maintenance of water levels within Flitwick Moor SSSI and other designated or priority sites.
2. To seek opportunities for the creation of these habitats whether through development control or creation during watercourse management.

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Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	To assist in the maintenance of water levels within Flitwick Moor and other designated or priority sites	1.1	Undertake actions contained within the WLMP	Wildlife Trust, Beds CC	As in Plan	Actions completed	Annually
		1.2	Revise the management protocol for all works on water courses based on the ADA Drainage Manual and other guidance (see 18)			Completed document	As completed
2	Seek opportunities for creation of habitats	2.1	Specific consideration via development control and works planning	Landowner , Wildlife Trust Planning Authorities	Ongoing	Annual liaison	Annually

12.6 Associated Species

The following species will also benefit from this habitat action plan

Water vole

Otter

European Eel

Amphibians

Grass snake

Sedge warbler

Reed bunting

13 WATER VOLE

13.1 Introduction

Water voles are the largest of the vole family in the U.K. and are found in both the uplands and lowlands of Britain. They are herbivorous, feeding on the aerial shoots and leaves of marginal and bankside plants on well- vegetated watercourses. A colonial animal, water voles are territorial in the breeding season which lasts from March to September. Each female may have between two and five litters annually each with five to eight young. Living in burrows in the bank, the voles do not hibernate but spend the winter underground. There is an over-winter mortality of around 70%.

13.2 Legal Protection Status

From April 2008, water voles and their resting places are fully protected in England by the Wildlife and Countryside Act 1981 and as amended. It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places and to disturb them in their breeding or resting places. Licences issued by Natural England may be available to undertake actions that would normally be unlawful, but these are not available for development or land drainage purposes.

13.3 National Status

Once common and widespread, this species has suffered a significant decline in both numbers and distribution. A national survey in 1989-90 failed to find signs of voles in 67% of sites where they were previously recorded and it was estimated that this will rise to 94% by 2000. A recent population estimate based on the number of latrines found suggested a total GB pre-breeding population of 1,200,000 animals.

Declines have occurred from a number of factors: habitat degradation and loss, fragmentation of population and predation (particularly from mink).

13.4 Local Status

Water voles are present within 8 10-km squares within Bedfordshire and are considered to be continuing to decline. Of nineteen sites recorded within 1989/90, twelve had disappeared by 1996/98. A metapopulation is present along the River Ivel north of Biggleswade, and smaller populations are present along the Potton Brook, the Renhold Brook and the River Lea. Isolated populations are present on the river Flit and the Yeldon.

13.5 Status within the Drainage District

Following survey by the Bedfordshire Otter and Rivers Project, key areas for water voles have been identified within the Bedfordshire and River Ivel IDB district. These are identified in Appendix 3 and are the Potton Brook and the River Ivel north of Biggleswade

Water vole populations are known to occur along the River Hiz.

13.6 National UK BAP Targets

These include:

- Arrest the decline and maintain the current distribution and status of the water vole.
- Restore water voles to the pre-1970 distribution by 2010.
- Ensure the management of watercourses and wetlands in order to maintain the restored population.
- Maintain the current range (730 occupied 10 km squares of the water vole in the UK).
- Achieve an increase in range of 50 new occupied 10 km squares in the UK by 2010.

13.7 Local Biodiversity Action Plan Targets

Bedfordshire BAP targets are:

- Maintain the range of the Bedfordshire water vole population as defined in the 2005 and 2006 water vole survey reports (present in 30 1-km squares)
- Expand the range of water voles to 33 1-km squares by 2010

No Cambridgeshire targets are available as the Cambridgeshire species plans are currently under review.

13.8 Bedfordshire and River Ivel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for water voles to breed successfully.

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Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor water vole and mink populations	1.1	Maintain a data base of any sightings of water vole (X ref BARS WV-07 and WV-11)	Wildlife Trust; Ivel and Ouse Countryside Project	On going	Data supplied to BBRC	Annual
2	Provide appropriate habitat conditions	2.1	During works in proximity to known populations, provide enhanced conditions to aid expansion (X ref BARS WV-03)	Ivel and Ouse Countryside Project	On-going		
		2.2	Include management for water vole within the management protocol (5.2) (X ref BARS WV-04 and 05)		2011	Completed document	As completed
		2.3	Assume water voles are present when undertaking works in potentially suitable habitats and manage according to protocol		Ongoing	Length of watercourse under sensitive management	Annual
3	Control mink	3.1	Carry out mink control (X ref BARS WV-06)	Ivel and Ouse Countryside Project	Ongoing as necessary	No of mink caught	Annual

14 OTTER

14.1 Introduction

Otters are large mammals, approximately 1.2 metres long. They are widely spread across Britain in marine as well as in inland waters and are capable of travelling long distances over land. Generally solitary, the size of the territory depends on the position in the hierarchy and cubs share the mother's territory for around a year. Breeding may occur at any time of the year and between 2-3 young are typically born in a holt lined with vegetation.

14.2 Legal Protection Status

Otters and their resting places are fully protected in England by the Wildlife and Countryside Act 1981 and as amended and under the Conservation (Natural Habitats, etc.) Regulations 1994. It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places and to disturb them in their breeding or resting places. The otter is listed on Appendix 1 of CITES and Appendix II of the Bern Convention Schedule 2 of the (Regulation 38).

Licences issued by Natural England may be available to undertake actions that would normally be unlawful.

14.3 National Status

Formerly widespread throughout the UK, the otter underwent a rapid decline from the 1950s to 1970s and was effectively lost from midland and south-eastern counties of England by the 1980s. Strong populations remain in Wales, south-west England and much of Scotland, where sea loch and coastal colonies comprise one of the largest populations in Europe. There is also a significant population of otters in Northern Ireland. The decline now appears to have halted and sightings are being reported in former habitats.

The decline has been attributed to loss of habitat, lack of food resources, effect of pollutants eg PCBs and heavy metals, and accidental mortality including road kills.

14.4 Local Status

Otters were considered to be extinct in Bedfordshire by 1979 but started to recolonise in 1986 when evidence was found on the River Ivel. Reintroductions took place in 1995 and 1998. The fourth County survey in 2003/2004 found otters at 26 of the 63 standard survey sites. Otters are known to be present along the Great Ouse, the Ivel, the Elstow Brook, the Rhee and on the River Flit.

In Cambridgeshire, otters are known from all the major watercourses while in Hertfordshire otters are mainly confined to the River Stort and the lower Lea.

14.5 Status within the Drainage District

Within the Bedfordshire and River Ivel IDB district otters have been found along the River Flit, the Elstow Brook, the Potton Brook and particularly along the River Ivel.

14.6 National UK BAP Targets

These include:

- Maintain the current distribution of the otter throughout the UK.
- Expand the distribution of otters to achieve 85% occupancy of 10 km squares by 2015 (878 occupied 10-km squares).

14.7 Local Biodiversity Action Plan Targets

No Cambridgeshire targets are available as the Cambridgeshire species plans are currently under review.

Bedfordshire targets are:

- Maintain the range of the European otter in Bedfordshire as defined by the 2004 Bedfordshire county survey (25 of the 75 sites surveyed positive for otters)
- Restore otters to the River Kym, Til and Ouzel, and Elstow Brook and its associated lakes, confirmed by the presence of spraint in three of five years, by 2015.

14.8 Bedfordshire and River Ivel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for otters to breed successfully.

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Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor otter populations	1.1	Maintain a data base of any sightings of otter (X ref BARS OT-16)	Wildlife Trust; Ivel and Ouse Countryside Project	On-going	Data supplied to BBRC	Annual
2.	Provide appropriate habitat conditions	2.1	Provide 1 artificial holt annually (X ref BARS OT -09) and negotiate fencing of 2 field corners annually*	Ivel and Ouse Countryside Project; Landowner	On-going	Holt and field corners provided	Annual
		2.2	Include management for otter within the management protocol (X ref BARS OT-07 and OT-08)		2011	Completed document	As completed
		2.3	Assume presence when undertaking works in potentially suitable areas and manage according to protocol		On-going	Length of watercourse under sensitive management	Annual

* Subject to landowner's approval

15 KINGFISHER

15.1 Introduction

A characteristic bird on watercourses, kingfishers are a fish-eating species which nests in holes in earth banks

15.2 Legal Protection Status

Kingfishers are listed on Schedule 1 of the Wildlife and Countryside Act 1981 and as amended which provides not only for the protection of nests, eggs and young but also for the disturbance while on the nest.

Kingfishers do not have a UK Biodiversity Action Plan or a Local Action Plan. It is however considered to be a key species.

15.3 National Status

An amber listed species in the 'Birds of Conservation Concern' kingfishers declined along linear waterways (its principal habitat) until the mid 1980s, since when it seems to have recovered completely. The decline was associated with a contraction of range in England (BTO data). No long term trend in the population size has been noted.

15.4 Local Status

Kingfishers occur along all the main watercourses in Cambridgeshire, Bedfordshire and Hertfordshire.

15.5 Status within the Drainage District

Kingfisher has been recorded throughout the IDB district.

15.6 Bedfordshire and River Ivel IDB Objectives and Targets

1. Establish baseline information on distribution and numbers of the species.
2. Provide appropriate habitat conditions for kingfisher to breed successfully.

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor population	1.1	Maintain a data base of any sightings of kingfisher	Wildlife Trust	On-going	Data supplied to BBRC	Annual
2	Maintain potential nest sites	8.1	Keep earth cliffs where present		On- going	No of cliffs present and retained	Annual

16 EUROPEAN EEL

16.1 Introduction

The European eel is a species that breeds in the Sargasso Sea and returns to Britain to mature. They may spend between 15 and 20 years in British rivers before returning to the sea and their spawning grounds to reproduce.

16.2 Legal Protection Status

This species is listed on Appendix II of the CITES Convention.

European eels do not have a UK Biodiversity Action Plan. It is the subject of Eel Management Plan and is considered to be a key species within the Bedfordshire and River Ivel IDB district.

16.3 National Status

The eel was once a common species around Britain, being present in most rivers, streams and lakes that are accessible from the sea. Commercial eel fisheries were the most valuable inland fisheries in England and Wales and provided significant benefits to the rural economy. However, there is considerable concern about the status of eel stocks in the UK and Europe. Since the 1980s the numbers of young elvers returning to European rivers has declined to around 1% of historic levels. This is thought to be related in part to oceanographic changes between the spawning grounds near the Caribbean and the coast of Europe, and to other factors such as pollution, parasites, barriers to freshwater migration and over-fishing.

16.4 Local Status

The eel is the subject of a Management Plan for the Anglian Region of the Environment Agency.

16.5 Status within the Drainage District

Not known.

16.6 Bedfordshire and River Ivel IDB Objectives and Targets

1. Seek to ensure access to the watercourses within the Bedfordshire and River Ivel IDB district.

**BEDFORDSHIRE AND RIVER IVEL INTERNAL DRAINAGE BOARD
BIODIVERSITY ACTION PLAN**

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Maintain access to watercourses for elvers	1.1	Identify any possible obstructions and discuss with EA to formulate a means of providing access	EA	2011	Action completed	Upon completion

17 WHITE CLAWED CRAYFISH

17.1 Introduction

The white-clawed crayfish is the only native species of crayfish and was distributed throughout England and Wales. Crayfish can be found in a wide range of aquatic habitats, such as rivers, streams, canals and standing water. They prefer alkaline water with limited sediment, free of pollution and plenty of shelter in the form of rock, aquatic plants and tree roots, but do not exclusively occur in such habitat.

17.2 Legal Protection Status

White-clawed crayfish receive partial protection under the Wildlife and Countryside Act 1981 and as amended and it is illegal to take or sell the species.

17.3 National Status

Still widely distributed across Britain, numbers of this species have significantly declined over much of its range as a result of competition from introduced crayfish, crayfish plague, habitat loss and pollution.

17.4 Local Status

In eastern Britain populations are particularly scarce and those that are present tend to be small and isolated.

17.5 Status within the Drainage District

There were known to be three populations within the district. None are thought to remain, the last having been lost in 2005/ 6.

17.6 National UK BAP Targets

These include:

- Maintain current range of white-clawed crayfish in the UK.
- Achieve an increase in range of white-clawed crayfish in the UK by 59 10 km squares to 300 by 2030
- Maintain key populations of white-clawed crayfish in the UK.

17.7 Local Biodiversity Action Plan Targets

No Cambridgeshire targets are available as the Cambridgeshire species plans are currently under review.

The species is not a Bedfordshire LBAP species.

Hertfordshire Targets are as follows:

- To ascertain the distribution of the White Clawed Crayfish in Hertfordshire.
- To halt the decline of the White Clawed Crayfish in the County by 2008
- To restore the White Clawed Crayfish to all suitable open water habitats by 2028
- To enhance river habitat quality through a programme of river enhancements schemes with at least three schemes completed annually by 2008.

17.8 Bedfordshire and River Ivel IDB Objectives and Targets

1. Monitor presence of crayfish.
2. Maintain the potential suitability of locations of known recent populations

Target Ref.	Target	Action ref.	Bedfordshire and River Ivel IDB Action	Partner	Date	Indicator	Reporting
1	Monitor population	1.1	Maintain a data base of any sightings of any species of crayfish	Wildlife Trust	On going	Data supplied to BBRC	Annual
2.	Maintain potential suitability	2.1	Provide a tailored scheme to works in previously known locations	Otters and Rivers Project; Wildlife Trust	As required	Scheme completed	Following completion

18 PROCEDURAL ACTION PLAN

18.1 Introduction

A number of procedural targets and actions have been established within this Procedural Action Plan. These are intended to integrate biodiversity considerations into IDB practices and procedures but will also include protocols for protected species and other non BAP matters such as pollarding willows.

18.2 Objectives and Targets

Target Ref	Target	Action Ref	IDB Actions	Partners	Date	Indicators	Reporting
1	Develop best practice	1.1	Revise the existing management protocol for all works on watercourses based on the ADA Drainage Manual and other guidance		2011	Completed document	As completed
		1.2	Provide protected species training		Ongoing	Number of staff trained	Annually
		1.3	Require developers to follow best practice via consents procedures	Planning Authorities	Ongoing	Applications reviewed	Annually
2.	Data management	2.1	Establish data base for important wildlife records	Bedfordshire Biodiversity Recording Centre,	Ongoing	Data base regularly maintained	Annually

19 IMPLEMENTATION

19.1 Implementation

With some exceptions, for example the erection of artificial barn owl boxes, the habitat and species action plans can be delivered through minor changes to routine activities and through recording of observations made during the undertaking of such works.

As part of this BAP, a revised management protocol for all works on the watercourses, using information provided within the ADA Drainage Manual and other guidance will be prepared.

20 MONITORING

20.1 Monitoring

Monitoring of the Bedfordshire and River Ivel IDB BAP will be required to ensure that the actions detailed in the habitat and species action plans are being implemented.

Monitoring of the indicators detailed in the action plans will be undertaken and recorded, generally on an annual basis.

Species and habitats vary naturally over time. Monitoring will result in new information, such as the presence of species missed during earlier surveys. Any new information will be incorporated into the Bedfordshire and River Ivel IDB BAP as appropriate

21 REVIEWING AND REPORTING PROGRESS

21.1 Reviewing and Reporting Progress

Progression of the BAP requires monitoring and reporting to the public, BAP Working Group and also to the UK BAP.

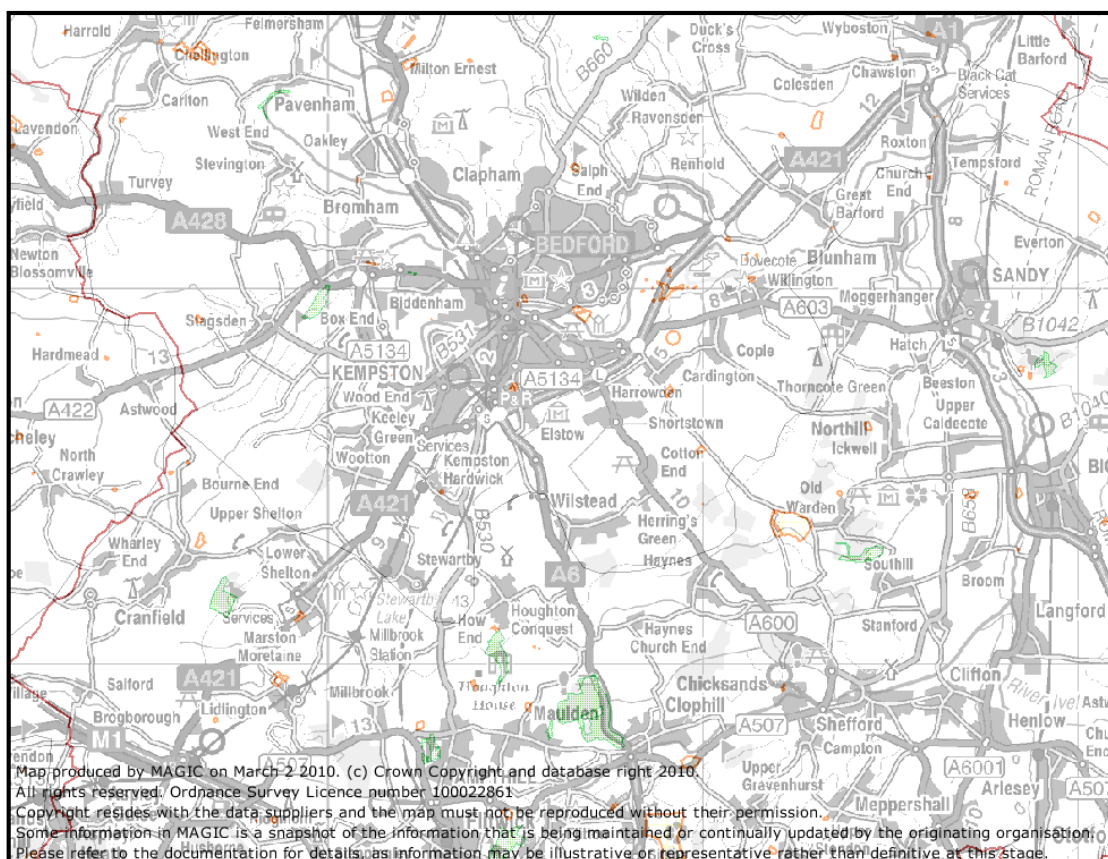
Progress towards each of the targets is likely to be assessed annually and it is anticipated that the Bedfordshire and River Ivel IDB BAP will be fully reviewed after five years. However the production and long-term development of the BAP is a flexible process

Annual reporting will be undertaken through meetings of the Bedfordshire and River Ivel IDB and through the national Biodiversity Action Plan Reporting System BARS. Targets and actions for individual action plans have been written so that they fit into

the national BARS which is the approved system for reporting. Using BARS annual progress reports can be produced and made available.

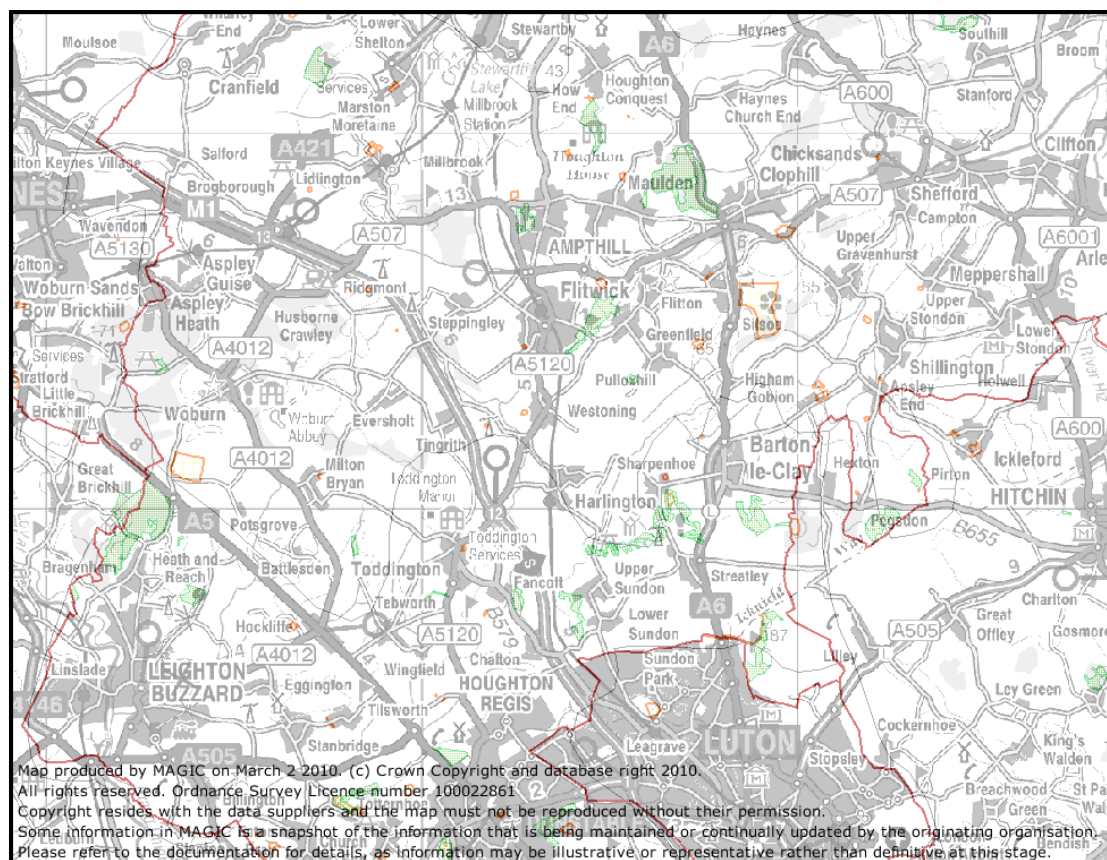
APPENDIX 1: LOCATION OF SITES OF SPECIAL SCIENTIFIC INTEREST WITHIN AND ADJACENT TO BEDFORDSHIRE AND RIVER IVEL IDB DISTRICT

Map 1: Northern area



Map 2: Southern Area

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**BEDFORDSHIRE AND RIVER IVEL INTERNAL DRAINAGE BOARD
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**APPENDIX 2: LOCATION OF COUNTY WILDLIFE SITES WITHIN
BEDFORDSHIRE AND RIVER IVEL IDB DISTRICT**

Bedfordshire

Site	Label	Grid Reference	Description
Apsleybury Wood CWS	2	TL 117326	
Arlesey Meadows CWS	3	TL 188365	
Cople Pits CWS	58	TL 099493	
Coronation Pit CWS	59	TL 029433	
Great Barford House Grassland CW	100	TL 138532	
Henlow Park Woods CWS	113	TL 190382	
Hill Farm Pit CWS	117	TL 193385	
Hipsey Spinney CWS	120	TL 030281	
Kempston Hardwick Pit CWS	144	TL 033450	
Lady Wood CWS	154	TL 127550	
Langford Common CWS	156	TL 182408	
Meadhook Wood CWS	170	TL 063323	
Millbrook Pillinge Pit CWS	175	TL 006412	
Poplars Nursery CWS	205	TL 022301	
Poppyhill Pits CWS	206	TL 182393	
Priory Country Park CWS	210	TL 069492	
Putnoe Wood CWS	214	TL 066525	
Sharpenhoe Grove CWS	236	TL 060311	
Shillington Churchyard CWS	238	TL 123339	
Shillington Meadow CWS	239	TL 119339	
Stewartby Lake CWS	257	TL 007422	
Warren Wood CWS	292	TL 085371	
Waterloo Thorns CWS	294	TL 181519	
West Wood CWS	298	TL 993625	
Willington Moat CWS	304	TL 111501	
Woodcock Wood CWS	312	TL 026281	
Wrest Park Grounds CWS	314	TL 091349	
Buckle Grove CWS	315	TL 085343	
Zwetsloots Pits CWS	322	TL 157515	
Priory Park Railway CWS	323	TL 057492	
Lower Alders CWS	329	TL 129389	
Great Barford Gravel Pits CWS	345	TL 120508	
Elstow Pit CWS	368	TL 046457	
River Great Ouse CWS	372	TL 935533	
Fancott Woods and Meadows CWS	373	TL 025275	
Flitwick Manor CWS	375	TL 029338	
Cainhoe Lakes CWS	377	TL 098378	
Upper Alders CWS	378	TL 114388	
Simpsonhill Plantation CWS	380	TL 079371	
River Flit CWS	381	TL 033339	
Flit Valley CWS	382	TL 058362	
Flitwick Moor CWS	383	TL 048351	
Biggleswade Common CWS	385	TL 187463	
South Mills Pits CWS	387	TL 157502	
Millbrook Warren CWS	390	TL 003374	
Rivers Ivel and Hiz CWS	395	TL 184431	

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Hertfordshire

Site	Label	Grid Reference	Description
High Down : the Close	10/020	TL 144305	Calcareous Grassland
Ickleford Common	11/010	TL 185330	R Hiz and pastures with unimproved neutral and acid wet grassland
Ickleford Watercress Beds	11/011	TL 1888328	Watercress beds by River Hiz
Lower Green Ickleford	11/012	TL 186323	Rough grassland and ditches by the R. Hiz
Lower Green South Meadow	11/013	TL 186322	Damp meadow by R. Hiz
Cadwell Grove West Meadow	11/014	TL 186319	Damp meadow adj. to R. Hiz. Important for wintering birds.
Cadwell Grove	11/015	TL 186318	Damp meadow with ditches by R. Hiz
Cadwell Marsh and Burymead Springs	11/023	TL 187314	Mosaic of habitats by R. Hiz
River Hiz, Cadwell	11/039	TL 187323	River
Old Hale Way Allotments	11/042	TL 185310	Allotments adj to River Hiz and Cadwell Marsh
Pirton Grange Farm	10/025	TL 123329	Buildings

**APPENDIX 3: KEY WATER VOLE AREAS TAKEN FROM THE
BEDFORDSHIRE AND LUTON BAP**



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